for last year as a whole, rose 2.4 percent, year to year. However, travel in winter months tends to be more variable than at other times of the year due to effects of weather on road conditions. Both Januarys had been unseasonably warm, likely giving a temporary boost to travel in both periods but making the year-to-year comparison less reliable as an indicator of more recent trends. Taken together, the data suggest that underlying consumption has recently been declining at perhaps 0.5 to 1 percent, year to year.

Distillates

REDUCED HEATING DEMAND LOWERS DELIVERIES.

Unseasonably warm weather for the third month in a row contributed to distillate fuel oil's continued year-to-year decline in March, with deliveries falling close to 200 thousand B/D or 5.7 percent. For the quarter, heating degree days averaged roughly 15 percent warmer than last year, and deliveries fell 5.5 percent or about 190 thousand B/D.

However, even if adjusted for weather, the quarter's deliveries would have shown an estimated 1 percent decline. Deliveries in the latter half of last year averaged around a 1 percent increase (also adjusted for weather, including December's severe cold). With continued, though slower, economic growth believed to be continuing so far this year, it appears unlikely that underlying consumption has slipped into a decline. Mainly because of estimated slight growth in on-highway usage, we estimate that the underlying consumption trend has still been one of marginal growth.

On-highway usage, in fact, has been the main source of the growth in distillate demand in recent years. Of the overall 10 percent, 285 thousand B/D increase in distillate deliveries between 1985 and 1989, nearly four-fifths is estimated to have come from growth in on-highway diesel consumption; moderate amounts were also contributed by electric utility consumption, vessel bunkering, and off-highway usage. Other than for short-term, weather-related swings, heating usage has been relatively stable over that period.

Residual Fuel Oil

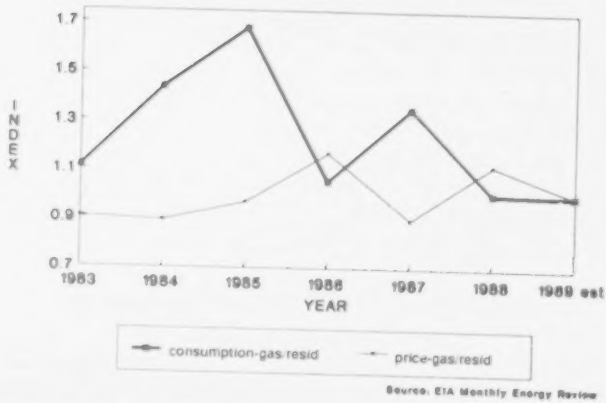
WEATHER AND SWITCHING CUT UTILITY USAGE.

Residual fuel oil deliveries fell 6.8 percent in March, continuing a slide which has persisted since last August. Demand weakness for the month is believed to be both price and weather related as the effects of relatively high residual fuel prices early in the winter and unseasonably mild weather during early 1990 were still being felt in March.

Consumption of residual fuel by electric utilities (typically representing between a third and a half of total residual fuel oil demand) began falling relative to natural gas shortly after residual fuel prices started climbing last spring. Fuel substitution within the electric utility sector has been more responsive to relative prices than within other sectors; consequently, the electric utility share of total residual fuel consumption typically has fallen when price is high relative to other fuels.

As the accompanying graph illustrates, substitution by electric utilities between residual fuel and natural gas has mirrored changes in relative prices for the two fuels. In the figure, the

Electric Utility Consumption and Price Natural Gas and Residual Fuel Oil



Source: EIA Monthly Energy Review

ratio of natural gas prices to residual fuel oil prices paid by electric utilities, and a similar ratio for consumption, are indexed (1989=1.00) and the relationship between price and consumption of the two fuels are compared.

After peaking in mid-January, residual fuel prices have fallen steadily and by the end of March were down by about 15 percent from their March 1989 level. Spot natural gas prices have generally moved in the same direction as residual fuel prices, but with significantly smaller magnitude. At the end of March, spot gas prices were down by about 7 percent versus March 1989.

However, first quarter weather has been mild across much of the country, including the Northeast and mid-Atlantic regions where use of residual fuel oil is concentrated. The nine states in these two regions account for nearly 65 percent of U.S. electric utility use of residual fuel oil (with most of this in New York and Massachusetts). Versus March of last year, heating degree days in the East were down about 10 percent and despite increases in electricity demand late in the month, electricity output in Mid-Atlantic and New England states was down slightly for the month as a whole. The mild weather can be expected to have had an even greater impact on residential and commercial natural gas demand; consequently, electric utilities are believed to have had a more ready supply of natural gas than during typical winter heating months.

While demand for residual fuel in the electric utility sector is contingent on its price relative to natural gas, demand for residual fuel oil as a bunker fuel is influenced by prices in the U.S. relative to prices in foreign ports and by the amount of total U.S. ocean-borne imports and exports. Bunker fuel prices in March were moderately more expensive in the northeast U.S. than in Western Europe. However, the price differentials for the month were significantly smaller than during December and January. Since January, prices in California (a state which accounts for about 40 percent of the fuel oil laden in the U.S. on vessels involved in foreign trade) have become more competitive with Far East prices as well.

Kerosine Jet Fuel

DELIVERIES LAG BEHIND AIR TRAFFIC.

Deliveries of kerosine jet fuel were up in March; however, the 1.7 percent increase during the month lagged behind recent growth in airline travel. Product supplied was up 0.5 percent

during the first quarter while airline miles flown are believed to have been up approximately 4.5 percent.

Short-term divergence between growth in air traffic and kerosine jet fuel deliveries is not unusual. However, trends in growth of each do tend to follow similar patterns over longer periods of time. Over the most recent twelve months (excluding December, during which kerosine jet fuel is believed to have been blended with distillate), both deliveries and available airline seats grew at rates between 1 and 2 percent.

Variability in deliveries may be related in part to changing short-term price expectations by purchasers. Jet fuel prices fell considerably during the first quarter, following substantial increases in December and early January coinciding with the weather-related blending demand mentioned above. Delayed replenishment of end-user inventories in the midst of falling prices may have been at least partly responsible for the relative weakness of the first quarter's deliveries in comparison with air traffic.

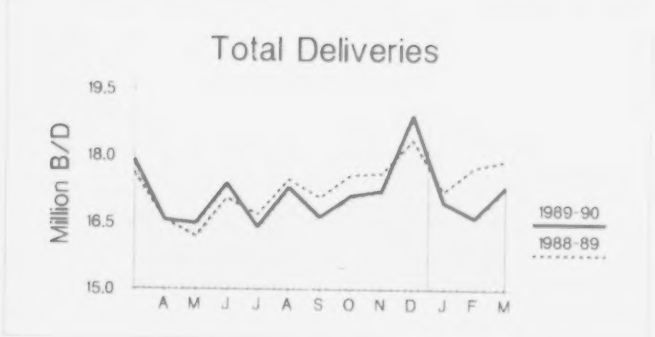
Other Oils

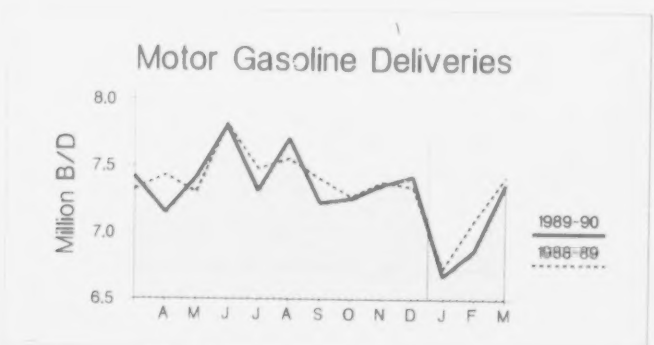
DECLINE CONTINUES. Deliveries of "other oils" continued their decline in March, falling 6.0 percent. For the quarter as a whole, deliveries fell 7.4 percent in part because of the warm weather's effect on propane deliveries for heating; however, even adjusted for weather, deliveries would have fallen an estimated 5 to 6 percent, in large part due to apparent continued slackness in demand for petrochemical feedstocks.

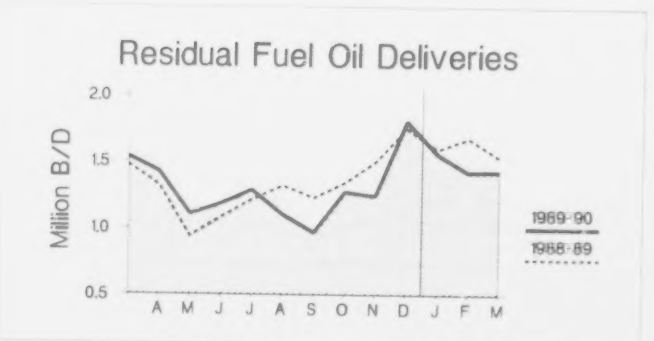
Developments for petrochemical feedstocks deliveries are significant, since they constitute a major portion of the "other oils" category. At about 1.4 million B/D, they account for one-third of "other oils" and about 8 percent of total petroleum deliveries. Petroleum deliveries for petrochemical use are estimated to have risen nearly 20 percent between 1985 and 1989. The LPG feedstocks—including propane, butane, and particularly ethane—account for two-thirds of the total; about four-fifths of these feedstocks are extracted from natural gas streams. The remainder of the feedstocks consists of naphtha and gasoil produced at refineries.

The lighter feedstocks tend to produce proportionately more ethylene, one of the primary petrochemical building blocks, while output from heavier feedstocks tends to be a more complex slate of compounds. Thus, the comparative demands for the various feedstocks depend not only on their relative cost and the extent to which plants can substitute feedstocks, but on shifts in the demand for derivatives as well.

Unlike the "major" products, deliveries data on petrochemical feedstocks represent a transfer out of the petroleum data system rather than product supplied for immediate end use. Thus, though nearly 85 percent of feedstock deliveries are reported as taking place in the Gulf Coast region (PAD III), end-use consumption is more broadly distributed geographically.







SUPPLY [1/]

Production

DECLINE TREND MASKED BY YEAR-AGO EVENTS.

Crude oil production declined nearly 350 thousand B/D or 4.5 percent for the first quarter. However, the year-to-year decline was smaller than it otherwise would have been due to temporary developments in Alaska for the year-ago period. In late March and early April of last year, North Slope output was curtailed due to restrictions on shipping traffic following the tanker accident near Valdez. As a result, Alaskan production averaged less than 1.7 million B/D last March compared with nearly 2.0 million B/D in February of that year.

For Alaska, in particular, the year-to-year comparison for this year's first quarter shows only a minimal, 12 thousand B/D decline in crude oil output because production, averaged over the first quarter of 1989, was roughly 100 thousand B/D below trend for that state. Meanwhile, lower 48 output continued to decline in this year's first quarter, dropping 335 thousand B/D. Thus, without the loss of North Slope production last year, this year's first quarter decline in domestic crude oil production as a whole would have amounted to about 450 thousand B/D or nearly 6 percent.

Imports

HIGHEST QUARTERLY LEVEL SINCE 1979.

Total imports in March, though down slightly from recent prior months, still exceeded year-ago levels by 8.7 percent. For the quarter as a whole, imports reached nearly 8.4 million B/D, up almost 9 percent from the same period in the prior year and the highest quarterly level since 1979.

Deciphering a longer-term trend from import data is complicated by the many factors that influence short-term swings in imports. One such factor is inventory behavior, since a short-term build or draw from inventory beyond normal patterns can raise imports above or lower them below the longer-term trend. For example, in the first quarter of this year, the 640 thousand B/D dropoff in demand exceeded the decline in domestic crude production, implying a decline in the underlying import trend. But because of the unusual inventory build of over half a million B/D during the first quarter (and a less than average decline one year earlier), imports for the quarter jumped nearly 700 thousand B/D.

There is more to the story, however, because deliveries were unusually weak in the first quarter due to warm weather and other factors, while the year-to-year decline trend in crude oil production was partly masked by the temporary dropoff in Alaskan production for the year-ago period. Adjusting for these factors implies an underlying growth rate in imports for the quarter of roughly 200-300 thousand B/D.

Product imports fell 453 thousand B/D or nearly 19 percent for March, and despite unusually strong imports for January, declined 113 thousand B/D or 4.5 percent for the quarter from relatively high levels one year earlier. The major contributor to the quarter's decline was residual fuel oil, which fell 173 thousand B/D or 21 percent because of continued weak demand. Imports of gasoline and components fell 35 thousand B/D or 8 percent. Distillate imports, though down by one third in March, were up slightly for the quarter as a whole because of extremely high import levels in January following extraordinarily cold weather in December.

Refinery Operations

ACTIVITY'S DECLINE LESS THAN FOR DELIVERIES.

February and March are typically among the lowest months of the year for refinery utilization because of refinery turnarounds, but this February's output had been unusually strong. In March, however, refinery activity slackened. Utilization of capacity in actual op ation, which had exceeded 90 percent in January and February, slipped to less than 87 percent in March. (Utilization on the basis of reported capacity amounted to 83.7 percent for the month). But year to year, input to distillation units was off only 0.6 percent for March, even though deliveries dropped by a substantially larger amount.

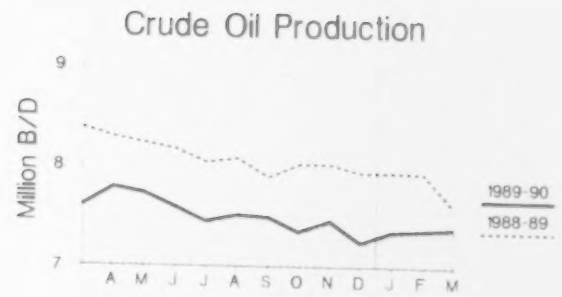
Mirroring the declines in deliveries of gasoline and distillate fuel oil, output of these products slipped 0.5 percent and 3.2 percent, respectively, compared with last March. Kerosine jet fuel production rose 4.4 percent and residual fuel oil output, 4.9 percent.

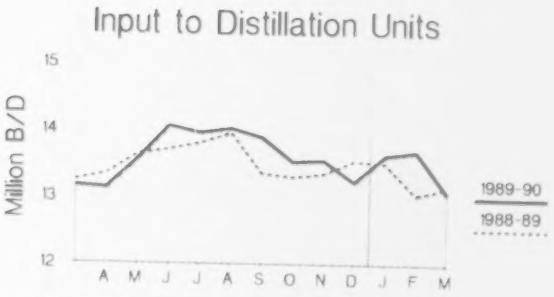
Inventories

CRUDE STOCKS RISE MORE THAN 20 MILLION BARRELS.

March's 6 million barrel decline in total stocks was about one third the recent-year average of about 19 million barrels. The month's smaller decline was the net result of a 28 million drop in product stocks combined with a substantial, 22 million barrel jump in crude oil inventories due to continued strength in crude oil imports. Crude oil stocks at month-end, in fact, were at the top of their approximately 325-to-365 million barrel range of the past three years.

Gasoline stocks typically decline in March, and though the 19 million barrel drop this March was greater than the recent-year average of 12 million barrels, ending stocks were only slightly below their level of a year ago. Distillate stocks fell 13 million barrels to 102 million barrels as the end of the heating season approached, though warm weather helped keep stocks about 6 million barrels higher than for one year earlier.





1/ Total supply, i.e., production plus imports adjusted for net stock change is equal to total products supplied from primary storage. Total products supplied from primary storage less exports is equal to total domestic products supplied. Information contained in this report is derived from information published in the API Weekly Bulletin and is based on historical analysis of the industry. All data reflect the most current information available to the API and include all previously published revisions.

2/ Includes lease condensate.

3/ API data do not include crude oil imported for the Strategic Petroleum Reserve (SPR) nor crude oil stocks held in the SPR (according to the U.S. Department of Energy, the SPR held approximately 582 million barrels as of March 31, 1990).

ESTIMATED UNITED STATES PETROLEUM BALANCE
(Daily Average in Thousands of 42 Gallon barrels)

Products Supplied/Supply From Primary Storage	MARCH			YEAR-TO-DATE		
	1990[1]	1989[2]	% Change	1990[3R]	1989[2]	% Change
Products Supplied:						
Total motor gasoline	7,366	7,421	(0.7)	6,973	7,082	(1.5)
Finished leaded motor gasoline/*	426	1,040	(59.0)	431	999	(56.9)
Finished unleaded motor gasoline/*	6,940	6,381	8.8	6,542	6,083	7.5
Naphtha-jet	180	211	(14.7)	182	195	(6.7)
Kerosine-jet	1,289	1,267	1.7	1,311	1,303	0.6
Distillate fuel oil	3,232	3,429	(5.7)	3,191	3,378	(5.5)
Residual fuel oil	1,431	1,535	(6.8)	1,480	1,601	(7.6)
All other oils[4]	3,914	4,162	(6.0)	3,929	4,241	(7.4)
Reclassified[5]	-89	-118	(24.6)	-78	-177	(55.9)
Total domestic products supplied	17,323	17,907	(3.3)	16,988	17,623	(3.6)
Exports	889	860	3.4	857	830	3.3
Total products supplied	18,212	18,767	(3.0)	17,845	18,453	(3.3)
Supply:						
Domestic production:						
Crude oil[6]	7,388	7,510	(1.6)	7,367	7,713	(4.5)
Natural gas liquids	1,539	1,647	(6.6)	1,502	1,635	(8.1)
Other supply[7]	1,130	1,182	(4.4)	1,150	1,005	14.4
Total domestic supply	10,057	10,339	(2.7)	10,019	10,353	(3.2)
Imports:						
Crude oil, total/*	6,007	4,917	22.2	5,981	5,184	15.4
Canadian	561	624	(10.1)	576	626	(8.0)
Other	5,446	4,293	26.9	5,405	4,558	18.6
Products, total	1,947	2,400	(18.9)	2,405	2,518	(4.5)
Residual fuel oil	452	703	(35.7)	640	813	(21.3)
Other	1,495	1,697	(11.9)	1,765	1,705	3.5
Total imports	7,954	7,317	8.7	8,386	7,702	8.9
Total supply	18,011	17,656	2.0	18,405	18,055	1.9
Stock change, all oils	-201	-1,111	*****	560	-398	*****
Refinery Operations						
Input to crude oil distillation units	13,0[illegible]	13,159	(0.6)	13,457	13,234	1.7
Operable capacity	15,614	15,663	(0.3)	15,586	15,682	(0.6)
Refinery utilization (%)[9]	83.7	84.0	(0.4)	86.3	84.4	2.3
Crude oil runs	12,922	12,963	(0.3)	13,306	13,031	2.1

Stocks (millions bbls.)	1990		1989[2]	% Change from	
	Mar. 31[10]	Feb. 28[10]	Mar. 31	Previous Month	Year Ago
Crude oil[8]	365.1	343.4	326.3	6.3	11.9
Unfinished oils	110.2	108.1	108.5	1.9	1.6
Total motor gasoline/**	227.5	246.2	230.0	(7.6)	(1.1)
Finished leaded motor gasoline/*	13.5	14.9	32.4	(9.4)	(58.3)
Finished unleaded motor gasoline/*	171.8	186.8	156.7	(8.0)	9.6
Naphtha-jet	6.8	6.4	6.1	6.3	11.5
Kerosine-jet	40.8	39.8	37.9	2.5	7.7
Distillate fuel oil	102.1	114.8	96.6	(11.1)	5.7
Residual fuel oil	43.7	50.0	42.4	(12.6)	3.1
All other oils	157.5	151.2R	155.4	4.2	1.4
Total all oils	1,053.7	1,059.9R	1,003.2	(0.6)	5.0

/1 Based on API estimated data converted to a monthly basis.
/2 Source: U.S. Department of Energy.
/3 Source: January, U.S. DOE, February-March, API.
/4 Includes crude losses.
/5 Beginning with January 1981, U.S. Department of Energy began using a new data collection system which encompasses a method to ascertain the amount of product reclassified during the production phase. So that there will be no double counting of these volumes, they are subtracted from the total domestic products supplied.
/6 API estimate; includes lease condensate.
/7 Includes Unaccounted-for crude oil, Processing gain and Field Production of other hydrocarbons and alcohol.
/8 Data do not include oil imported for the Strategic Petroleum Reserve (SPR) nor crude oil stocks held in the SPR.
/9 Represents "Input to crude oil distillation units" as a percent of "Operable capacity".
/10 Derived by interpolating API weekly stocks data.
/R Revised.
/* Included in motor gasoline.
/** Includes finished leaded, finished unleaded, and motor gasoline blending components stocks.